

## Design Workout 2

**PAPER PROTOTYPING:** Make a paper prototype of a cell phone app and try it out with 5 potential users. Be sure to take a picture of the paper prototype and hand that in with a summary of your experience trying it out with users. Your summary should include the implications for future iterations of your prototype.

I created a paper prototype for an application for Montgomery County RideOn bus users. This application will notify users of bus times according to the current time and the users' current GPS location. The application will also allow users to browse bus times, plan trips in advance and notify other users if a bus is running late. There is currently no GPS system in place

for the Montgomery County Rideon buses, so the application uses a combination of the bus timetables (which are found on the Montgomery County Rideon website) and crowdsourcing – allowing users to notify other users of bus times.

### Creating the Prototype:

Below, are pictured the different task flows that users can do based on the current interface.

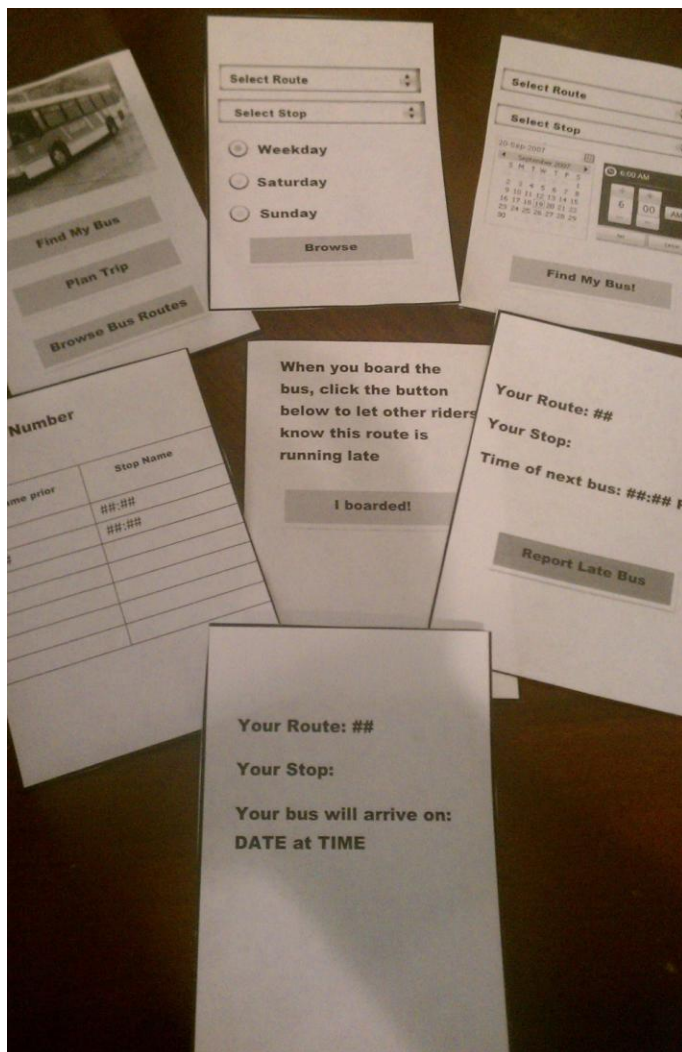


Figure 1: Picture of Paper Prototype

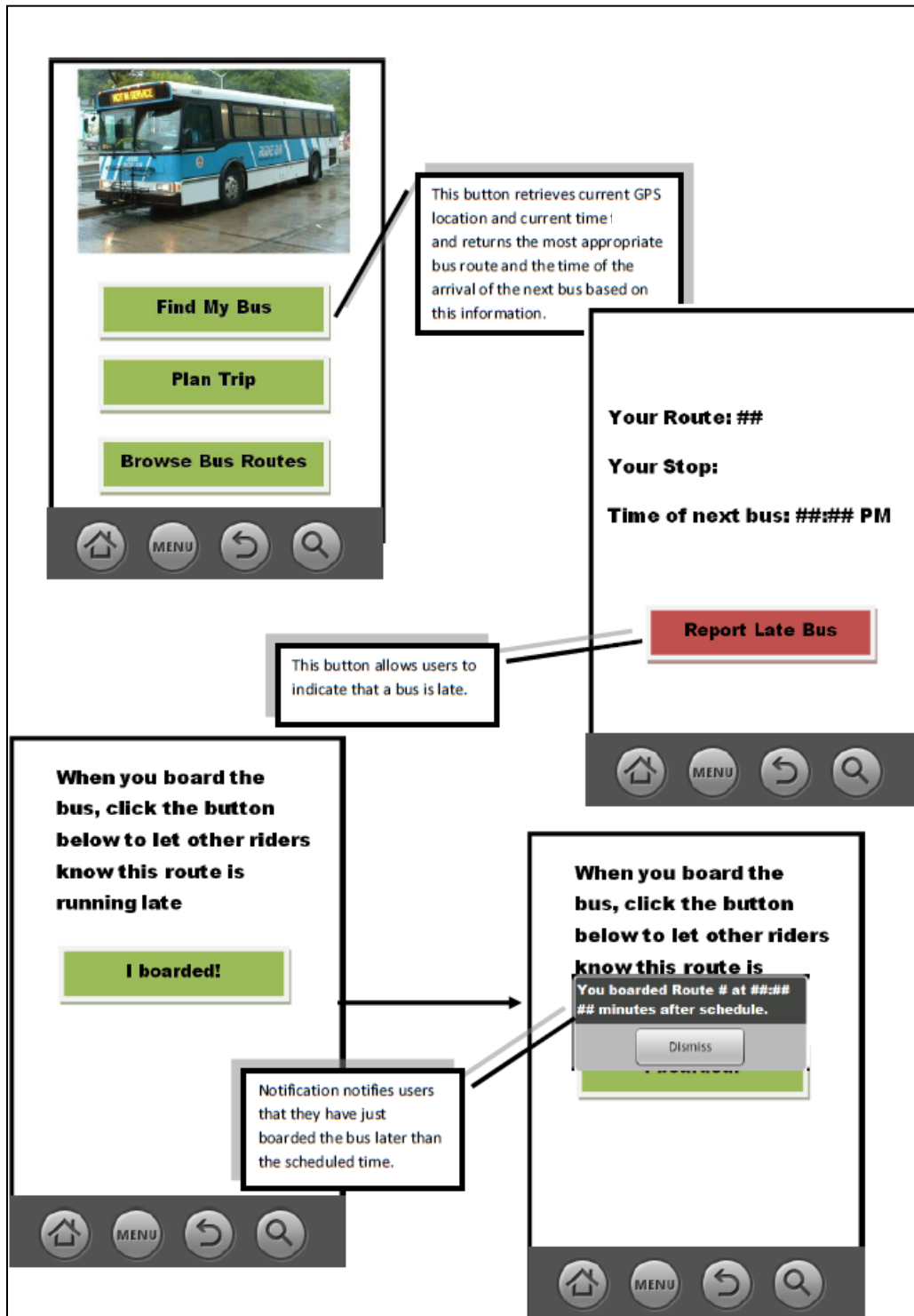


Figure 2: The interface flow if the user chooses the option "Find My Bus" on the home page

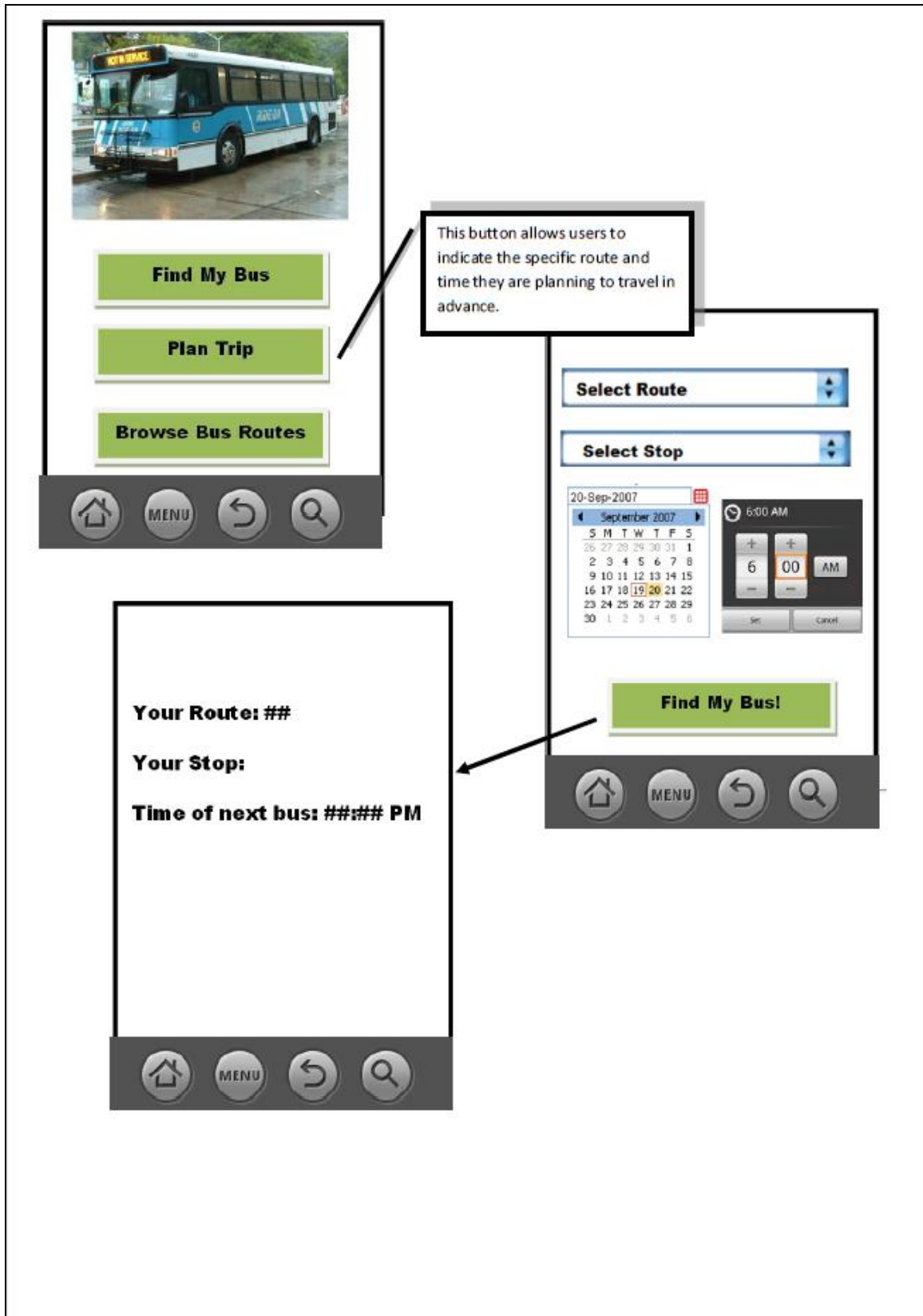


Figure 3: The interface flow if the user chooses the option "Plan Trip" on the home page

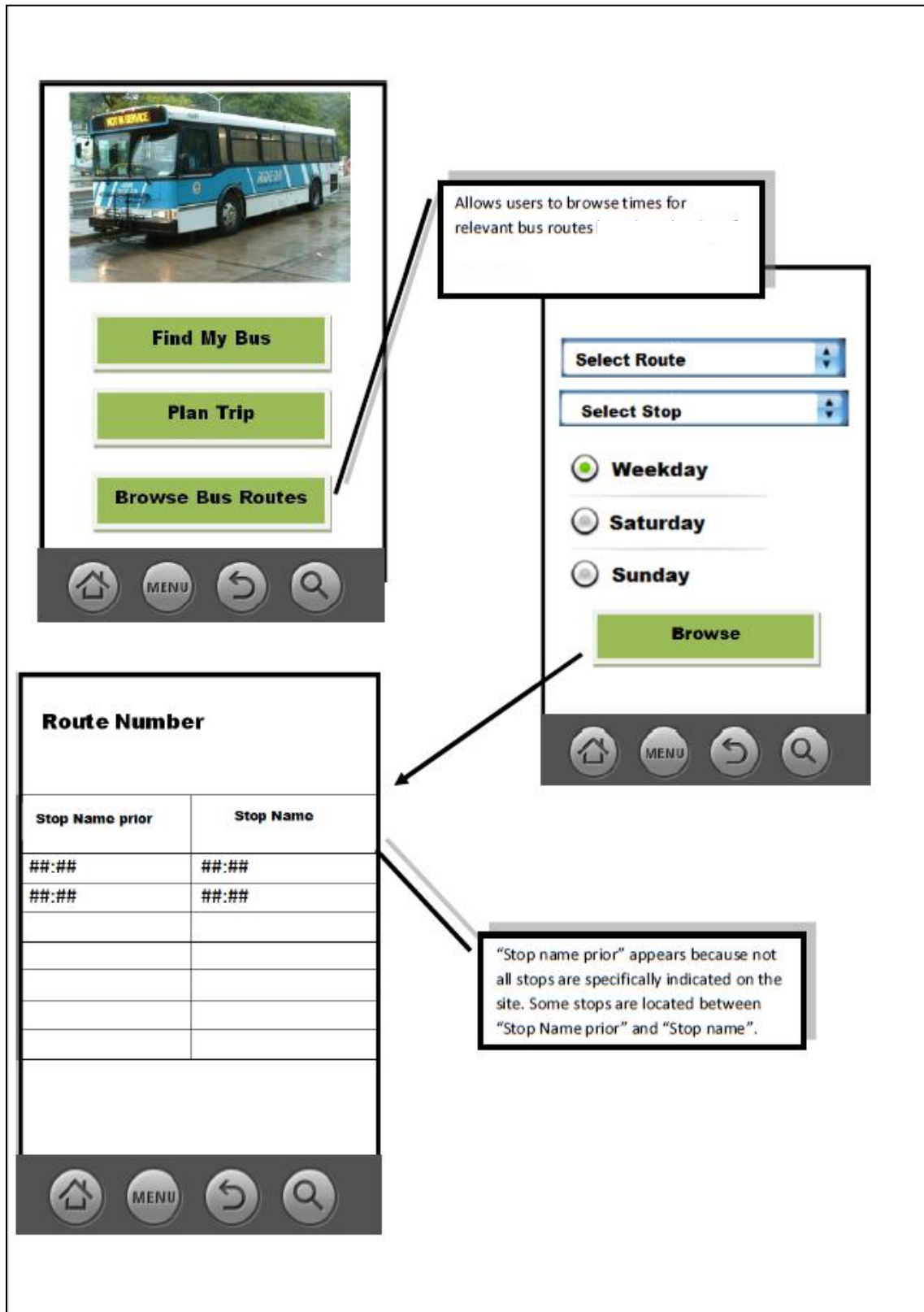



Figure 4: The interface flow if the user chooses the option "Browse Bus Routes" on the home page

## User Reactions:

**User 1:** This user is a college student. She first opted to “Plan a Trip”. She was then navigated to a screen where she could choose a route number, bus stop on that route number, the date she will be riding the bus, and the time that she’ll be riding the bus. She was confused by the calendar that appeared on the page. She felt the calendar required irrelevant input from the user because bus times only differ based on weekdays, Saturdays, and Sundays. It is not necessary to prompt a user for a particular date in order to tell them the time that they should expect a bus.

**User 2:** This user is a high school student who occasionally uses the RideOn bus system. She chose to “Plan a Trip” first. She was confused by the input options Route and Stop. She wasn’t sure which she should enter first. After she entered her information, she pressed the “Find My Bus” Button. The next screen told her the bus times for the route and stop she had entered. This user then wanted to browse back to the home page. She looked for a home page on the application. It took time for her to discover the little icons  were a part of the application.

**User 3:** This user pointed out a very important aspect that was missing from the interface. She asked “Where should I put the direction I’m going in?” My interface was missing an input area for users to enter the direction in which they would be travelling. For example, Route 32 has two directions: Bethesda Station and Friendship Heights station. Times vary based on the direction in which you are travelling. In a new iteration of my prototype, I will include an area in which users can input the direction in which they will be travelling.

**User 4:** This user was confused by the “Browse Bus Routes” interface. She inquired on why the application only displays the times for the stop indicated by the user and times for the stop prior to the one indicated by the user. This is an important question. The time tables of times listed for each route on the site do not list all stops on each route. They only list the stops on major intersections. Most of the bus stops are located between two of the major stops listed on the site, so it is important to see the stop indicated by the user and the stop prior because in reality the stop the user is seeking is in between two of the major stops.

| Route Number    |           |
|-----------------|-----------|
| Stop Name prior | Stop Name |
| ##:##           | ##:##     |
| ##:##           | ##:##     |
|                 |           |
|                 |           |
|                 |           |
|                 |           |
|                 |           |

Figure 5: Only times for stop indicated by user and the stop before the stop indicated by the user are displayed.

**User 5:** This user browsed the application and pressed the all three buttons: “Find My Bus”, “Plan Trip”, and “Browse Bus Routes”. After exploring these options and returning to the home page, he inquired why there wasn’t a button on the homepage that would allow him to immediately report a late bus. He presented the following situation, “Let’s say I use this application to plan in advance and find the time that my bus will arrive. I take a mental note, go to the bus stop, and realize it is late. Do I have to re-enter all of the information again in order to



Figure 6: Suggestion by one of the users to add "Report Late Bus" button to home page of application


report that it is late?” He said that a button on the home page allowing users to report a late bus directly without having to press the other buttons would enhance the application.

### **Implications:**

After exploring the prototype with the aforementioned users, I realized there were several issues with my prototype. The first and most important issue is the terminology on the homepage. I found that “Find My Bus” and “Plan My Trip” were not completely intuitive in terms of their functions. Four of the five users that I tested opted to choose “Plan My Trip” first, while the “Find My Bus” option is the quickest way to immediately find the next bus time. For future iterations of the prototype, I will choose the following terms on the home page:

1. “Find My Next Bus Time” – This option will find the next relevant bus time for the user according to their location and the current time.
2. “Plan in Advance” – This option will find the next relevant bus time according to input by the user (location, time and day)
3. “Browse Bus Routes” – This option was intuitive. Users knew that if they pressed this button they would be able to browse bus times
4. “Report Late Bus” – will allow users another way to report a late bus if that is the only reason they log into an application. (For the altruistic users)

In this study, users indicated that it was unnecessary to have a calendar for users to input the day they are travelling when they “Plan in Advance”. The schedules differ between two times: weekdays, Saturdays and Sundays. Thus, an alternative would be to present users with radio buttons that allow them to choose between weekday, Saturday or Sunday.

Another change I would make to a new iteration of this prototype would be to put a home icon at the top of the page that would allow them to browse back to the home page. All Android interfaces provide a navigation bar like this:  on the hardware of the phone. Some of the users tested were iPhone users and were not familiar with the “home” button on the Android. Adding a home button would make the user’s experience less confusing.

One of the users, (User 3), indicated that the application was missing very important input from the user. The application doesn’t inquire about the direction of the route the user is taking. This is very crucial information that is necessary in order to retrieve the time of the next bus. In the next iteration of my prototype, I will include the opportunity for the user to enter the direction in which they plan to travel.

Users indicated that it was confusing to enter route information and stop information on the same page. They should only be allowed to enter a stop once they entered the route they want to travel. For the next iteration of this prototype, the application will first require users to enter the route number and only then direct them to another page that will present them with possible stops based on the route number they entered.

For the next iteration of this prototype, I will present the bus route information for browsing in a manner that presents all times for stops coming before and after the stop the user requested. For browsing purposes, such information presented to the user would be useful. Such an addition to the application would give users a better idea of the time frame they should expect to see the bus for which they are waiting.